

CLAIMS

What is claimed is:

- 5 1. In a method for transmission of payment messages in a system that includes a smart card, a payment application on the smart card, a telecommunication network, a smart card server in the telecommunication network, and a payment server in the telecommunication network and connected to the payment application via a telecommunication connection, and wherein a smart card client is disposed on the smart card and connected to the payment application, the payment server is connected to the smart card server, and the smart card client is connected to the smart card server via the telecommunication connection, the improvement comprising:
- optimizing exchange of payment messages between the payment application and the payment server over an interface defined at least in part by the telecommunication
- 15 connection between the smart card client and the smart card server by
- storing in the smart card client a message, from the payment application, to be transmitted from the payment application to the payment server,
- sending to the smart card server a first composite message comprised of at least one message intended for transmission over the telecommunication connection,
- 20 storing on the smart card server a message to be transmitted over the telecommunication connection from the payment server to the payment application, and

sending to the smart card client a second composite message comprised of at least one message intended for transmission over the telecommunication connection.

5 2. In a method in accordance with claim 1, further comprising the step of sending a response message from the smart card client to the payment application.

10 3. In a method in accordance with claim 2, wherein the response message is formed as a message from the payment server.

15 4. In a method in accordance with claim 2, wherein the response message is based on a message received by the smart card client from the smart card server over the telecommunication connection.

20 5. In a method in accordance with claim 1, further comprising the step of sending a response message from the smart card server to the payment server.

 6. In a method in accordance with claim 5, wherein the response message is formed as a message sent by the payment application.

7. In a method in accordance with claim 5, wherein the response message is based on a message received by the smart card server from the smart card client over the telecommunication connection.

5 8. In a method in accordance with claim 1, further comprising the step of insuring operability of communication between the payment application and the payment server, by

initiating a payment application transaction with an initiating transmission of a payment message between the payment server and the payment application, and after said initiating transmission, continuing transmission of payment messages via the smart card client and the smart card server.

9. In a method in accordance with claim 1, wherein communication via the telecommunication connection is implemented using short messages.

15 10. In a method in accordance with claim 1, wherein communication via the telecommunication connection is implemented using USSD protocol.

11. In a method in accordance with claim 1, wherein communication via the
20 telecommunication connection is implemented using WAP protocol.

12. In a method in accordance with claim 1, wherein communication via the telecommunication connection is implemented using GPRS protocol.

13. In a system for transmission of payment messages that includes a smart card, a payment application on the smart card, a telecommunication network, a smart card server in the telecommunication network, and a payment server in the telecommunication network and connected to the payment application via a telecommunication connection, and wherein a smart card client is disposed on the smart card and connected to the payment application, the payment server is connected to the smart card server, and the smart card client is connected to the smart card server via the telecommunication connection, the improvement comprising:

means for optimizing exchange of payment messages between the payment application and the payment server over an interface defined at least in part by the telecommunication connection between the smart card client and the smart card server, said optimizing means comprising:

means for storing a message to be transmitted from the payment application to the payment server,

means for sending to the smart card server a first composite message comprised of at least one message,

means for storing a message to be transmitted over the telecommunication connection from the payment server to the payment application, and

means for sending to the smart card client a second composite message
comprised of at least one message.

14. In a system in accordance with claim 13, wherein the smart card client
5 comprises means for sending a response message to the payment application.

15. In a system in accordance with claim 14, wherein the smart card client
comprises means for forming the response message as a message from the payment server.

16. In a system in accordance with claim 14, wherein the smart card client
further comprises means for basing the response message on a message received by the smart
card client from the smart card server over the telecommunication connection.

17. In a system in accordance with claim 14, wherein the smart card server
15 comprises means for sending a response message to the payment server.

18. In a system in accordance with claim 17, wherein the smart card server
comprises means for forming the response message as a message from the payment
application.

19. In a system in accordance with claim 17, wherein the smart card server comprises means for basing the response message on a message received from the smart card client.

5 20. In a system in accordance with claim 13, further comprising:
means for initiating a payment application transaction with an initiating transmission of a payment message between the payment server and the payment application to insure operability of communication between the payment application and the payment server;
and

10 means for continuing, after said initiating transmission, transmission of payment messages via the smart card client and the smart card server.

21. In a system in accordance with claim 13, wherein communication via the telecommunication connection is implemented using short messages.

15 22. In a method in accordance with claim 13, wherein communication via the telecommunication connection is implemented using USSD protocol.

20 23. In a method in accordance with claim 13, wherein communication via the telecommunication connection is implemented using WAP protocol.

24. In a method in accordance with claim 13, wherein communication via the telecommunication connection is implemented using GPRS protocol.